

Appl. No. : 10/754,917
Filed : January 9, 2004

REMARKS

In the February 22, 2007 Office Action, the Examiner:

rejects Claims 35-40 under 35 U.S.C. § 101 as directed to non-statutory subject matter;

rejects Claims 1, 3-5, 8, 12, 14-16, 19, 21, 23, 25, 27, 32, and 34 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,613,942 by Chen ("Chen");

rejects Claims 35, 37, 38, and 40 under 35 U.S.C. § 102(b) as being anticipated by Luebbert (Communications of the ACM, Volume 7, Issue 12) ("Luebbert");

rejects Claims 2, 13, and 24 under 35 U.S.C. § 103(a) as unpatentable over Chen;

rejects Claims 6, 17, 20, 28, and 31 under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of U.S. Patent No. 5,832,100 to Lawton, et al. ("Lawton");

rejects Claims 11 and 22 under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of Se, et al. (The International Journal of Robotics Research, Vol. 21, No. 8);

rejects Claim 33 under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of U.S. Patent No. 3,989,929 to Treiber;

rejects Claim 36 under 35 U.S.C. § 103(a) as being unpatentable over Luebbert in view of Wuschack (IBM Quality Assurance Operating Procedure, Book 1, Volume 03, Subject 109);

rejects Claim 39 under 35 U.S.C. § 103(a) as being unpatentable over Luebbert;

rejects Claims 41-49 under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of U.S. Patent No. 6,711,293 to Lowe; and

requests clarification as to whether Applicants desired to invoke 35 U.S.C. § 112 paragraph 6 for Claim 47 and "all examined" claims.

Applicants request reconsideration of the rejections in view of the foregoing amendments and the following comments.

Discussion of Amendments to 35 U.S.C. § 112, paragraph 6

Applicants request invocation of 35 U.S.C. § 112, paragraph 6 for Claims 47 and 49 only.

Applicants do not wish to invoke 35 U.S.C. § 112, paragraph 6 for the other pending claims, *i.e.*, do not wish to invoke 35 U.S.C. § 112, paragraph 6 in claims that do not use the phrase "means for."

Appl. No. : 10/754,917
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Discussion of Rejections 35 U.S.C. § 101

The Examiner states that Claims 35-40 “are not statutory because they are not capable of causing function change in a computer.” Applicants have amended Claim 35 to clarify the invention, including recitation of “computer-readable instructions for controlling a mobile robot.”

Applicants note that Claim 35 is an apparatus claim and now recites a “set of physical computer control cards.” Further, Applicants respectfully submit that the set of physical computer control cards recites physical structure and recites more than mere nonfunctional descriptive material. For example, amended Claim 35 recites “a set of command cards with indicia associated with commands, wherein each card of the set of command cards comprises: a portion comprising graphical indicia depicting a command that the mobile robot is configured to execute; and a portion comprising computer-readable instructions associated with said command.” Thus, for example, the control cards include cards capable of causing a function change in a mobile robot.

Accordingly, Applicants respectfully submit that Claim 35 recites more than mere nonfunctional descriptive material, and Applicants request withdrawal of the rejections under 35 U.S.C. § 101. In view of the amendment to Claim 35, Applicants request withdrawal of the rejections under 35 U.S.C. § 101 to Claims 36-40.

Discussion of Claims 1, 12, and 23

Applicants have amended Claims 1, 12, and 23 to incorporate the limitations of Claims 2, 13, and 24, respectively, and to clarify distinctions over the cited art. Claims 2, 13, and 14 have now been canceled. Claims 2, 13, and 24 under 35 U.S.C. § 103(a) had been rejected by the Examiner as unpatentable over Chen, and Applicants address those rejections herein.

The Examiner states that “[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of programming and controlling a robot of Chen to include mobility since it has been held that the fact that a claimed device is portable or movable is not sufficient by itself to patentably distinguish over an otherwise old device unless there are new or unexpected results. *In re Lindberg*, 194 F.2d 732, 93 USPQ 23 (CCPA 1952).” (M.P.E.P. 2144.04 (V)(A))

Appl. No. : 10/754,917
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Applicants respectfully traverse. Claims 1, 12, and 23 are *method* claims for *control* of a mobile robot and are not apparatus claims for a device that is merely portable or movable. Applicants further note that a characteristic of being “portable or movable” does not imply that the object is self-propelled, as a mobile robot is. Thus, the cited case law of *In re Lindberg* is not applicable.

It appears to Applicants that the “system 70” of Chen is not self-propelled or mobile, but rather, is stationary. A conveyor 12 (Figure 2) brings objects to the view of the camera 14 (Figure 2). A robot arm 19 (Figure 2) of the stationary machine is controlled to manipulate a tool. In the claimed invention, by contrast, a mobile robot (not just the arm) can physically move from one location to another location. Accordingly, one aspect of the invention is a technique of programming the mobile robot in a manner that can be moved to the mobile robot wherever it should be located, and can, for example, affect the mobility of the robot itself. This functionality may be achieved with cards that can be taken to the mobile robot and presented to the robot in a desired order for the purpose of dynamically programming the robot to move to another location. In claim 1, for example, the mobile robot allows the user to control the mobility of the robot by recognizing these cards and the associated programming instructions that define the mobility of the robot. In contrast to the present invention, the robot in Chen is stationary and therefore not configured to recognize mobility instructions. Accordingly, Applicants respectfully submit that Chen does not teach or suggest mobility control content of the cards or behavior associated with “mobility of the mobile robot” as claimed.

In order “[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.” *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Accordingly, Applicants respectfully submit that Claims 1, 12, and 23 are not obvious over Chen and request allowance of the same.

Discussion of Claim 35

Applicants have amended Claim 35 to clarify the claimed invention. The amendments to Claim 35 are supported by, for example, Tables I to IV. Applicants respectfully submit that Luebbert does not teach or suggest each and every element of amended Claim 35 and respectfully request allowance of the same. For example, the cards of the claimed invention have one function per card.

Appl. No. : 10/754,917
Filed : January 9, 2004

An object of Luebbert's mark cards is to provide an efficient manner of recording an existing program code and inputting that program code to a computer. Luebbert's cards can each store multiple blocks of instructions, presumably in a specific pre-defined order. Rearranging such cards results in rearranging entire blocks of instructions, which would typically not result in functioning code.

In the present invention, however, the instructions for individual operations can be interchanged as needed to create and modify a new program that controls the mobility of the robot. By providing one function per card, the individual cards can advantageously be rearranged by the user to change the order of operation of the corresponding instructions. In this manner the user can easily and conveniently define and change the mobility of the robot without a computer and without re-printing new mobility control cards.

Discussion of Claims 41, 44, and 47

The Examiner rejects Claims 41, 44, and 47 as obvious under 35 U.S.C. § 103(a) over Chen in view of Lowe. Applicants have amended Claims 41, 44, and 47 by incorporating dependent Claims 42, 45, and 48, respectively, and to clarify distinctions over the cited art.

Applicants respectfully submit that the combination of Chen and Lowe does not teach or suggest all of the claim limitations. In order “[i]to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.” *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

For example, the Examiner acknowledges that the “combination of Chen and Lowe fails to disclose the use of a mobile robot.” Applicants disagree that the characteristics of mobility and “portable or movable” are the same, and respectfully submit that the cited case law of *In re Lindberg* is not applicable. Applicants respectfully submit that it would not be obvious to control the mobility of a self-propelled mobile robot, and accordingly request allowance of Claims 41, 44, and 47.

Rejection of Dependent Claims

Dependent Claims 3-11 depend from and further define Claim 1. Dependent Claims 14-22 depend from and further define Claim 12. Dependent Claims 25-34 depend from and further define Claim 23. Dependent Claims 36-40 depend from and further define Claim 35. Dependent

Appl. No. : 10/754,917
Filed : January 9, 2004

Claim 43, 46, and 49 depend from and further define Claim 41, 44, and 47, respectively. The dependent claims recite numerous additional distinctions over the cited references.

For example, dependent Claim 27 describes “visually observing a plurality of indicia on a plurality of objects,” and “arranging the plurality of desired behaviors in an order according to a visually observed arrangement of the corresponding plurality of objects.” This order is used for “controlling the behavior of the machine.” For example, in paragraph [0028], Applicants described that “[w]here more than one card is shown at a time, the process can organize the computer program based on the relative positions of the cards. For example, the process can organize the computer program based on a left-to-right and a top-to-bottom ordering of the cards.” By contrast, Chen teaches that a “plurality of sheets or cards 75a-75e are shown *in logical sequence representing a series of program instructions*,” Col. 4, lines 32-34 (emphasis added).

In addition, Applicants respectfully submit that the rejections to dependent Claims 3-11, 14-22, 25-34, 36-40, 43, 46, and 49 are moot for at least the reasons described for Claims 1, 12, 23 41, 44, and 47, and Applicants accordingly request allowance of Claims 3-11, 14-22, 25-34, 36-40, 43, 46, and 49.

Discussion of New Claims

Applicants have added new dependent claims 50-55 herein to further define the invention as claimed. Claims 50-55 depend from and further define Claim 35. Claims 50-53 are supported by, for example, Tables I-IV. Claims 54 and 55 are supported by, for example, paragraph [0026].

The new dependent claims recite numerous additional distinctions over the cited references. For example, Claim 55 recites a “printed code.” By contrast, Luebbert describes that a user (cadet) marks the mark-sense card. For example, Luebbert describes that “[n]umbers (which require marking of a single position) are printed in black.” In addition, in a reference provided by the Examiner from the Federal Election Commission (FEC), titled “Marksense (Optical Scan), the FEC describes that “[v]oters record their choices by filling in the rectangle, circle or oval, or by completing the arrow.”

In addition, Applicants respectfully submit that Claims 50-55 are patentable for at least the reasons discussed for Claim 35, and request allowance of the same.

Appl. No. : 10/754,917
Filed : January 9, 2004

SUMMARY

In view of the foregoing amendments and remarks, Applicants respectfully request the Examiner to withdraw the rejections of the Claims under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a). Applicants further request the Examiner to allow Claims 1, 3-12, 14-23, 25-41, 43-47, 49, and 50-55 and to pass the present application to the issue process.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: July 23, 2007

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